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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/714,021

11/13/2003

Atsushi Kato

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1983

33448

7590

01/19/2007

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EXAMINER

BERNATZ, KEVIN M

ART UNIT

PAPER NUMBER

1773

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/714,021

Applicant(s)

KATO ET AL.

Examiner

Kevin M. Bernatz

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 5-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/24/06.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

DETAILED ACTION

Response to Amendment

1. Amendments to the specification and claim 1, filed on September 13, 2006, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Request for Continued Examination

3. A Request for Continued Examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 13, 2006 has been entered. An action on the RCE follows.

Claim Objections

4. Claim 2 is objected to because of the following informalities: the present claim 2 has a left over underscore mark between the word "a" and "content" on line 2. The Examiner notes that this is an obvious typographical error, so no notice of non-compliance has been sent. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1 – 4 and 8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation that the lower magnetic layer has a thickness of at least three times greater than the thickness of the upper magnetic layer does not appear to have explicit support in the specification. While applicants may have support for the lower magnetic layer having a thickness of 2.5 μm while the upper magnetic layer has a thickness of 0.5 μm (*i.e. the data shown in Table 5*), the Examiner notes that the scope covered by the present claim language is significantly different than what is shown in Table 5. Applicants are invited to explicitly point out in the specification where it recites that the thickness of the lower magnetic layer should be thicker than that of the upper magnetic layer, as well as where the magnitude “at least three time” is explicitly stated. The data in Table 5 appears to only support an embodiment wherein the thickness of the upper is 0.5 μm and the thickness of the lower is 2.5 μm . The Examiner would consider allowing the language “the lower magnetic layer having a thickness of five times greater than the upper magnetic layer” based on the data in Table 5, but would recommend positively amending the specification to also

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recite such a number if Applicants choose to amend the claims to recite "five times greater" (note: ***not at least*** five times greater, which is still new matter barring a showing of explicit support for the language ***at least***).

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "lower" and "upper" in the last 2 lines. There is insufficient antecedent basis for this limitation in the claim. For the purposes of evaluating the prior art, the Examiner has interpreted "lower" to be "first" and "upper" to be "second".

Claim Rejections - 35 USC § 103

9. Claims 1 - 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S. Patent No. 6,045,901) in view of Murayama et al. (U.S. Patent App. No. 2003/0152806 A1).

Regarding claim 1, Hashimoto et al. disclose a magnetic recording medium (*Title*) comprising a non-magnetic supporter, a lower (i.e. applicants' "first") magnetic layer formed above said non-magnetic supporter and formed from a magnetic paint having a first ferromagnetic material (*col. 3, lines 28 – 37; col. 6, line 65 bridging col. 7,*

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line 15), and an upper (i.e. applicants' "second") magnetic layer formed above said first magnetic layer and formed from a magnetic paint having a second ferromagnetic material (*col. 3, lines 28 – 37; col. 5, lines 22 – 50; and examples*), wherein the first magnetic layer and the second magnetic layer include polyester polyol having an alicyclic framework (*col. 3, line 46 bridging col. 4, line 47 and examples*) and a polyurethane resin composed of a diisocyanate (*ibid*), wherein a concentration of a urethane group in the polyurethane resin ranges from 0.5 mmol/g to 3.0 mmol/g (*col. 5, lines 10 – 14*).

Hashimoto et al. fail to disclose controlling the thickness of the lower magnetic layer to have a thickness meeting the claimed limitations.

However, Murayama et al. teach a substantially identical structure to Hashimoto et al. (*Abstract and Paragraphs 0006 – 0013 and 0020 – 0023*) wherein when the magnetic layer comprises multiple magnetic layers, the upper magnetic layer is much thinner than the total magnetic layer thickness (i.e. if only 2 magnetic layers, then the upper magnetic layer would be much thinner than the lower magnetic layer) (*Paragraphs 0065 – 0071*).

While Murayama et al. teach ranges in thickness for the two layers that lead to overlapping relative thickness values with the present claim limitations, the Examiner acknowledges that Murayama et al. fail to explicitly teach controlling the thickness values to meet the claimed relative magnitude limitations. However, Murayama et al. does teach that the thickness values of the multiple magnetic layers can be varied to effect the smoothness and mechanical strength (as well as impacting the magnetic

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properties) in a multi-layered magnetic recording medium (*Paragraphs 0065 - 0071*).

Therefore, the Examiner deems that it would have been obvious to one having ordinary skill in the art to optimize the relative thickness values of the multiple magnetic layers to meet applicants' claimed relative thickness limitations through routine experimentation.

In re Boesch, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 2 and 8, Hashimoto et al. teach that the upper and lower magnetic layers comprise a powder and can be formed in mixing ratios meeting applicants' claimed limitations (*col. 5, line 18 bridging col. 7, line 14*).

Regarding claims 3 and 4, Hashimoto et al. disclose additives meeting the claimed limitations (*examples*).

10. Claims 1 – 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murayama et al. (U.S. Patent No. 6,010,773) in view of Hashimoto et al. ('901) and Murayama et al. ('806 A1).

Regarding claim 1, Murayama et al. ('773) disclose a magnetic recording medium (*Title*) comprising a non-magnetic supporter, a lower (i.e. applicants' "first") magnetic layer formed above said non-magnetic supporter and formed from a magnetic paint having a first ferromagnetic material (*col. 2, line 59 bridging col. 3, line 16; col. 9, line 7 bridging col. 10, line 27*), and an upper (i.e. applicants' "second") magnetic layer formed above said first magnetic layer and formed from a magnetic paint having a second

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ferromagnetic material (*col. 2, lines 59 bridging col. 3, line 16; col. 8, lines 33 - 61; and examples*), wherein the first magnetic layer and the second magnetic layer include polyester polyol having an alicyclic framework (*col.4, line 46 bridging col. 7, line 59 and examples*) and a polyurethane resin composed of a diisocyanate (*ibid*)

Murayama et al. ('773) fail to disclose wherein a concentration of a urethane group in the binder resins ranges from 0.5 mmol/g to 3.0 mmol/g.

However, Hashimoto et al. teach controlling the urethane concentration in a urethane binder for magnetic recording media to amounts meeting applicants' claimed range in order to insure adequate mechanical strength and dispersion ability (*col. 5, lines 10 - 14*).

It would, therefore, have been obvious to one of ordinary skill in the art at the time of the applicants' invention to modify the device of Murayama et al. ('773) to use a urethane concentration meeting applicants' claimed limitations as taught by Hashimoto et al. in order to insure adequate mechanical strength and dispersion ability.

Neither Murayama et al. ('773) or Hashimoto et al. disclose controlling the thickness of the lower magnetic layer to have a thickness meeting the claimed limitations.

However, Murayama et al. ('806 A1) teach a substantially identical structure to Hashimoto et al. (*Abstract and Paragraphs 0006 - 0013 and 0020 - 0023*) wherein when the magnetic layer comprises multiple magnetic layers, the upper magnetic layer is much thinner than the total magnetic layer thickness (i.e. if only 2 magnetic layers,

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then the upper magnetic layer would be much thinner than the lower magnetic layer) (*Paragraphs 0065 – 0071*).

While Murayama et al. ('806 A1) teach ranges in thickness for the two layers that lead to overlapping relative thickness values with the present claim limitations, the Examiner acknowledges that Murayama et al. ('806 A1) fail to explicitly teach controlling the thickness values to meet the claimed relative magnitude limitations. However, Murayama et al. ('806 A1) does teach that the thickness values of the multiple magnetic layers can be varied to effect the smoothness and mechanical strength (as well as impacting the magnetic properties) in a multi-layered magnetic recording medium (*Paragraphs 0065 - 0071*). Therefore, the Examiner deems that it would have been obvious to one having ordinary skill in the art to optimize the relative thickness values of the multiple magnetic layers to meet applicants' claimed relative thickness limitations through routine experimentation. *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 2 and 8, Murayama et al. ('773) teach that the upper and lower magnetic layers comprise a powder and can be formed in mixing ratios meeting applicants' claimed limitations (*col. 8, line 28 bridging col. 10, line 34*).

Regarding claims 3 and 4, Murayama et al. ('773) disclose additives meeting the claimed limitations (*examples*).

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Response to Arguments

11. The rejection of claims 1 – 4 and 8 under 35 U.S.C § 103(a) – Various references

Applicant(s) arguments have been considered but are moot in view of the new ground(s) of rejection.

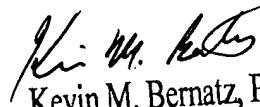
Conclusion

12. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kevin M. Bernatz whose telephone number is (571) 272-1505. The Examiner can normally be reached on M-F, 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB
January 16, 2007


Kevin M. Bernatz, PhD
Primary Examiner